Small Business Innovation Research/Small Business Tech Transfer

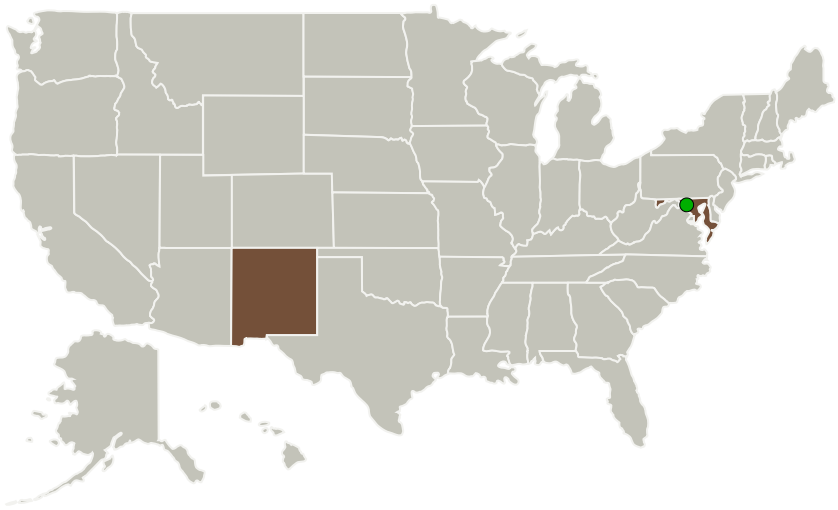
Cloud Droplet Characterization System for Unmanned Aircraft, Phase I

Completed Technology Project (2015 - 2015)

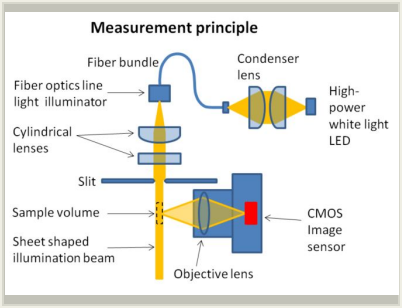
Project Introduction

Atmospheric clouds have strong impact on the global radiative budget. Cloud's radiative properties are strongly affected by droplet size distribution and number concentration. This SBIR project will develop an innovative, compact and inexpensive droplet measurement system (DMS), which will provide in situ measurement of droplet size distribution function and droplet number concentration in clouds. The DMS will be designed to meet the demanding requirements for deployment on small unmanned aircraft systems (UAS). Phase I will demonstrate the feasibility of the proposed method and yield benchtop technology ready for transition to a UAS-compatible prototype in Phase II.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Mesa Photonics, LLC	Lead Organization	Industry	Santa Fe, New Mexico
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



Cloud droplet characterization system for unmanned aircraft, Phase I

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Primary U.S. Work Locations	
Maryland	New Mexico

Project Transitions

June 2015: Project Start

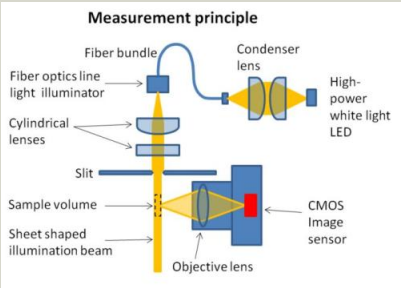
December 2015: Closed out

Closeout Summary: Cloud droplet characterization system for unmanned aircr aft, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138739)*

Images



Briefing Chart Image
Cloud droplet characterization system for unmanned aircraft, Phase I
(https://techport.nasa.gov/image/137210)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Mesa Photonics, LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Andrei B Vakhtin

Co-Investigator:
Andrei Vakhtin

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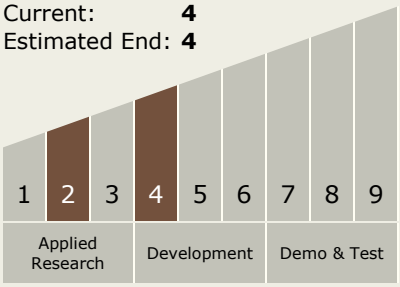
Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System